NREL NATIONAL RENEWABLE ENERGY LABORATORY | ENERGY SYSTEMS INTEGRATION FACILITY

U.S. DEPARTMENT OF ENERGY

National Renewable Energy Laboratory
Energy Systems Integration Facility (ESIF)
Call for High-Impact Project Proposals

Revised 1.13.17

The Energy Systems Integration Facility (ESIF) is a national user facility located on the National Renewable Energy Laboratory (NREL) campus in Golden, Colorado. ESIF is the nation's first research facility that can conduct integrated megawatt-scale research, development and demonstration (RD&D) of the components and strategies needed to safely integrate clean energy technologies seamlessly into the existing electrical grid infrastructure and utility operations at the speed and scale required to meet national goals. Through a combination of RD&D tools and approaches, ESIF allows researchers, entrepreneurs, utilities and other stakeholders the ability to identify and resolve the technical, operational, and financial risks of large-scale integration of renewable energy and energy efficiency technologies in today's environment.

Applications are now being accepted for potential high-impact projects at ESIF that will enhance innovation in the private sector and develop scalable technologies that satisfy the goals of the U.S. Department of Energy (DOE) Grid Modernization Initiative[1]. Through its Grid Modernization Multi-Year Program Plan (MYPP)[2], DOE coordinates a portfolio of activities to help set the nation on a cost-effective path to a resilient, secure, sustainable, and reliable grid that is flexible enough to provide an array of emerging services while remaining affordable to consumers. DOE works with public and private partners to develop the concepts, tools, and technologies needed to measure, analyze, predict, protect, and control the grid of the future. The work helps to integrate conventional and renewable sources of electricity, solve challenges of energy storage and distributed generation, and provide a critical platform for U.S. competitiveness and innovation in a global energy economy.

To be considered a high-impact project, applicants must meet all five of the following criteria:

1. Use of multiple technologies (e.g. storage, wind, solar, hydrogen, buildings, etc.);
2. Address challenges outlined in the Grid Modernization MYPP;
3. Have demonstrable impact on the companies/regions it supports;
4. Be nationally scalable; and

[1] http://energy.gov/under-secretary-science-and-energy/grid-modernization-initiative
[2] http://energy.gov/downloads/grid-modernization-multi-year-program-plan-mypp

5. Result in lessons learned that could be implemented nationwide.

As a key facility supporting the Grid Modernization Initiative, the ESIF houses an unparalleled collection of state-of-the-art capabilities that supports the development, evaluation, and demonstration of innovative clean energy technologies. The successful applicant will delineate the ESIF capabilities they will utilize to accomplish the objectives of the proposed high-impact project, and also how their project will provide one or more elements of lasting value[3] to the ESIF after the project is completed. Specialty ESIF research capabilities and equipment are described at http://www.nrel.gov/esif/. Prospective applicants are also encouraged to review the ESIF Stewardship Plan[4] for additional information on ESIF capabilities and strategic objectives prior to submitting a proposal.

Successful applicants will be integrated with NREL ESIF researcher(s) to conduct nonproprietary research at the ESIF. The duration of the project taking place in ESIF laboratories can be no more than 12 months.

Project proposals will be accepted until January 27, 2017, 5 p.m. Eastern Time. Selectees will be notified approximately two-four weeks after the application period closes.

Eligibility

1. Individuals- individuals are not eligible to apply for this opportunity.

2. Domestic Entities-

For-profit entities, educational institutions, and nonprofits[5] that are incorporated (or otherwise formed) under the laws of a particular State or territory of the United States are eligible to apply for this opportunity.

State, local, and tribal government entities are eligible to apply as the prime applicant or subtier partner.

Federally Funded Research and Development Centers (FFRDCs) and Government-Owned, Government-Operated laboratories (GOGOs) are eligible to apply as the prime applicant or subtier partner.

Federal agencies and instrumentalities (other than DOE) are eligible to apply as the prime applicant or subtier partner.

3. Foreign Entities

Foreign entities, whether for-profit or otherwise, are eligible to apply for this opportunity.

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[3] For example, new software tools, equipment, or expertise that enables strategies and solutions for future energy systems integration activity or experiments at ESIF.

[4] http://www.nrel.gov/docs/fy16osti/67166.pdf

[5] Nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995, are not eligible to apply for funding.

If a foreign entity applies as the prime applicant, it must designate in the proposal a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a State or territory of the United States to be the prime applicant. The cover page of the proposal must include the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate.

4. Incorporated Consortia

Incorporated consortia, which may include domestic and/or foreign entities, are eligible to apply for this opportunity as the prime applicant or subtier partner.

For consortia incorporated (or otherwise formed) under the laws of a State or territory of the United States, please refer to "Domestic Entities" above. For consortia incorporated in foreign countries, please refer to the requirements in "Foreign Entities" above.

Each incorporated consortium must have an internal governance structure and a written set of internal rules. Upon request, the consortium must provide a written description of its internal governance structure and its internal rules to NREL Management.

5. Unincorporated Consortia

Unincorporated Consortia, which may include domestic and foreign entities, must designate one member of the consortium to serve as the Prime Recipient/consortium representative. The Prime Recipient/consortium representative must be incorporated (or otherwise formed) under the laws of a State or territory of the United States. The eligibility of the consortium will be determined by the eligibility of the prime applicant/consortium representative.

Upon request, unincorporated consortia must provide NREL Management with a collaboration agreement, commonly referred to as the articles of collaboration, which sets out the rights and responsibilities of each consortium member. This agreement binds the individual consortium members together and should discuss, among other things, the consortium's:

- Management structure;
- Method of making payments to consortium members;
- Means of ensuring and overseeing members' efforts on the project;
- Provisions for members' cost sharing contributions; and
- Provisions for ownership and rights in intellectual property developed previously or under the agreement.

Mechanism

NREL uses a cooperative research and development agreement (CRADA) when a partner and a lab intend to work together on a project. NREL is a national laboratory operated by the Alliance for Sustainable Energy for the DOE. A CRADA is one of the agreement mechanisms DOE allows NREL to use when NREL performs work with other parties.

All participants in this program will become ESIF users. Users will be supported by ESIF Engineering and Operations staff to ensure proper set-up and decommissioning of the project. Training and oversight associated with safe operations and NREL procedures will be provided at no charge to the applicant.

Funding and Cost Share Requirements
DOE may provide funding (up to $250,000 per project) to match the applicant's cost-shared contribution, which can be a combination of payment for lab services and in-kind support. In-kind contributions must include collaboration in the research and development efforts of the CRADA and may also include personnel, services, facilities, equipment, and other resources. Work may be performed at either party's facilities and include services that are directly beneficial, specifically identifiable, and necessary for performance of the project. In-kind contributions generally do not include work performed prior to execution of the CRADA.

DOE match funding may be subcontracted by NREL to a third party if the work done by the third party will enhance the proposed high-impact project and capabilities of the ESIF. The prime applicant is not eligible to receive a subcontract from NREL.

Successful applicants are required to provide at least 50% of the total project value (e.g., DOE $250,000 + applicant cost share $250,000 = $500,000 total project budget).

Budgeting Process
Applicants will propose a scope of work for NREL researchers and the project team to perform together in the ESIF. If selected for negotiation, NREL staff will provide the applicant with a proposed budget for the NREL portion of the work and DOE match funding, which will dictate the minimum cost-share required by the applicant.

A portion of DOE's match funding will be used to develop communications materials based upon the results and lessons learned from this project. NREL will disseminate the information to the relevant stakeholder community.

Proposal Format and Required Elements
The proposal can only be submitted as an Adobe Acrobat PDF document (with a name in the form "company name_project title.pdf") via an email to userprogram.esif@nrel.gov. The required page format comprises margins of one inch around the text (top, bottom, left, and right) with the text in a 12-point, single-spaced, Times, Times New Roman, or appropriate symbol font (for math script). The subject line of the email should read "Application for ESIF High-Impact Project User Call".

a. Cover page (one-page limit)

Proposal Title and Abstract: Provide a descriptive title of your proposed high-impact project and an abstract that concisely (no more than 250 words) summarizes the proposed project's scientific topic or problem, the approach, and the expected scientific results and impact.

Please also include the following information on the cover page:

Research Team: In a table, list the names, institutions, email addresses, and roles of each person who will participate in the proposed activities. Indicate whether the prime applicant is a domestic entity, foreign entity, incorporated or unincorporated consortia. If the prime applicant is a foreign entity, state the parent company, country of incorporation and the name and location of the U.S. subsidiary that will act as the prime applicant. (Refer to eligibility requirements for more information).

ESIF Facilities: Briefly state which ESIF capabilities are of interest. Lab and equipment descriptions can be found at http://www.nrel.gov/esif/

Total Project Budget: (must include all cost-share and DOE match funding)

Cost Share Value: (must be at least 50% of total project budget)

b. Body (limit 4 pages to address topics b1 – b5)
Address each of the following topics in no more than four pages:

b1. Project Description: Describe your research approach and the goals of this project. What barriers must be overcome to address the research problem? Include a rationale for your approach/methodology and expected outcomes. Indicate why working in the ESIF with NREL researchers is necessary for meeting the project goals.

b2. Market Opportunity Assessment: Provide a description of the market opportunity or need that this project addresses. What is the magnitude of the market opportunity? How do current solutions fall short of addressing the problem satisfactorily?

b3. Impact and Alignment: In this section, specify how this project contributes to solving one or more of the challenges outlined in the Grid Modernization MYPP, strengthens the U.S. economy, provides lasting value to the ESIF, and aligns with the definition of a high-impact project. *Please be as specific and quantifiable as possible.* Use Table 1 to indicate how the project is aligned with the high-impact project criteria.

Table 1: High-Impact Project Alignment

High-Impact Project Criteria	**Corresponding Project Attribute**
Utilizes multiple EERE technologies (e.g., storage, wind, solar, hydrogen, electric vehicles, buildings, etc.)	

Addresses challenges outlined in the Grid Modernization MYPP	
Has demonstrable impact on the companies/ regions it supports	
Is nationally scalable	
Results in lessons learned that could be implemented nationwide	

b4. Commercialization and Dissemination: Indicate your intention for commercializing this solution or otherwise disseminating the results and lessons learned from this project. Identify key stakeholders who will benefit from the results or lessons learned from this project. (A portion of the DOE match funding will be allocated to disseminating information that benefits the broader community.)

b5. Cost Share Summary Please describe the elements of cost share that your organization will contribute to meet the cost-share requirement (e.g. labor hours, equipment, travel and shipping expenditures, or other expenditures directly associated with this project).

Table 2: Cost Share Summary

Cost Share Item	**Description**	**Value**
Total		

d. Gantt Chart (limited to one page)

Provide a one-page Gantt chart indicating the start and end dates for each task associated with this project. Include milestones, deliverables and responsible performers (organization) in the chart.

e. Vitae

In addition to the four pages in the body of the proposal, cover page and Gantt chart; provide a one-page curriculum vitae (CV) for each participant. The purpose of these vitae is to demonstrate that the people to be supported on the proposed project have the requisite talent and experience to carry out the proposed research and development effort. These vitae should be limited to one page per participant and are not included in the four-page limit on proposal body length.

f. Headers and Footers

To ensure that your proposal is clearly identified, please include, within the top and bottom one-inch margins, header and footer information as follows:

- Header-left: Proposal title
- Footer-left: Principal Investigator (PI) name
- Footer-right: Page number.

g. Other Notes

Proposals may contain embedded figures, but the entire proposal should be legible when printed in black and white (i.e., color figures that are not clear in black and white should be avoided) and the inclusion of figures must not result in exceeding the page limits.

h. Proposal Submission

All pages (cover page, body, Gantt chart, CVs) should be part of a single PDF document. Proposals must be submitted by emailing a PDF file to: userprogram.esif@nrel.gov no later than January 27, 2017, at 5 p.m. Eastern Time. The subject line for the email should read: "Application for ESIF High-Impact Project".

Review and Selection

All eligible proposals will be evaluated by NREL and DOE management. To be considered, an applicant must meet (1) all high-impact project criteria, (2) eligibility criteria, and (3) submit an application package comprising all required materials. The proposal materials received through the electronic submission process will provide the sole basis for the review.

The merit review committee evaluates the following criteria:

Alignment & Impact (60%)—Alignment will be assessed in regards to the extent that the project meets the five established criteria for high-impact projects and enhances ESIF capabilities.

Impact will be assessed according to the extent to which your project contributes to the following areas:

- advancing progress towards one or more of the goals outlined in the Grid Modernization MYPP,
- developing a product or solution that transforms or replaces existing industry approaches, or a new product or solution that can be widely used by the existing industry,
- strengthening U.S. competitiveness and domestic manufacturing, and
- expanding economic growth, job creation, and/or export opportunities for the United States.

Appropriateness of the proposed method or approach (30%)—Extent to which the logic and feasibility of the research approach are sound and can reasonably be solved within the budget and scope of the proposed project.

Competency of the project team (10%)—The extent to which the capability of the applicant's team can address the relevant aspects of the proposed project with a good chance of success, including (but not limited to) qualifications, relevant expertise, and time commitment of the individuals on the team.

Awards will be made at the discretion of NREL and DOE management based on available resources and funding.

For more information, attend an informational webinar on January 10 or January 17, 2017

Register for the webinars here: http://www.nrel.gov/esi/events.html#e_54843

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